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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/527,494	10/11/2005	Christoph Moelle	2133.082USU	4790
27623	7590	07/28/2008		
OHLANDT, GREELEY, RUGGIERO & PERLE, LLP ONE LANDMARK SQUARE, 10TH FLOOR STAMFORD, CT 06901			EXAMINER XU, LING X	
			ART UNIT 1794	PAPER NUMBER
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/527,494

**Applicant(s)**

MOELLE ET AL.

**Examiner**

LING XU

**Art Unit**

1794

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 March 2005.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-29 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-29 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 11 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-850)  
Paper No(s)/Mail Date 3/11/2005  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Inventor's Patent Application  
6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Specification*

1. The disclosure is objected to because of the following:

On page 6, line 10, the "y" in the formula  $Ti_xAl_{1-x}O_y$  is not defined. The same formula also appears in other pages, for example, pages 10-11. Appropriate correction is required.

### *Claim Rejections - 35 USC § 112*

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 1 and 8, the term "high thermal stability" is a relative term which renders the claim indefinite. It is unclear what level of thermal stability is considered "high thermal stability". The term "high thermal stability" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. In addition, it is also unclear what "thermal stability" is referred to.

In claims 2-3, 6, and 8-9, the term "optically inactive" is a relative term which renders the claim indefinite. A materials may be considered either

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optically active or inactive depending on the definition of the term "optically inactive". The term "optically inactive" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claims 14 and 27, the scopes of the claims are unclear because the "y" in the formula  $Ti_xAl_{1-x}O_y$  is not defined.

### ***Double Patenting***

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-29 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 16-19 and 21-24 of copending Application No. 10/527,499. Although the conflicting claims are not identical, they are not patentably distinct from each other.

The claims in the copending application discloses a coated substrate have at least one functional layer of metal oxide and at least one intermediate layer of a metal oxide. The coated substrate also comprises an alternating layer system made up of functional layers with a high refractive index and functional layers with a low refractive index. Because the structure of the coated substrate claimed in the copending application is the same/similar to the structure of the layer system claimed in the present application and would have been obvious to one of ordinary skilled in the art to make and use the claimed subject matters.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

#### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 5, 8-9, 11 and 20-26 are rejected under 35 U.S.C. 102(b) as being anticipated by Selhofer et al. ("*Comparison of pure and mixed coating*

*materials for AR coatings for use by reactive evaporation on glass and plastic lenses*" THIN SOLID FILMS, ELSEVIER-SEQUOIA S.A. LAUSANNE, CH, vol. 30, nos 1-2, 30 August 1999, pages 180-183, XP004183089 ISSN: 0040-6090).

Regarding claims 1-3, 5, 8-9, and 11, Selhofer discloses a titanium-aluminum oxide layer deposited on a SiO<sub>2</sub> wafer (see figure 8). The titanium-aluminum oxide layer and the SiO<sub>2</sub> layer can be considered as either a functional layer or an intermediate layer.

Regarding the "high thermal stability" limitation, since Selhofer discloses the same layer structure comprising the same materials as claimed, Selhofer's layer structure would inherently has the same properties such as high thermal stability and optically inactive. It is also confirmed by the description of the present application on page 3 of the specification that the "functional layer comprising titanium aluminum oxide inherently ensures a high thermal stability".

Claims 20-22 are product-by-process claims. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). In this case, since Selhofer discloses the same product as claimed, Selhofer anticipates the claimed product limitations even through the product disclosed by Selhofer may be made by a different process.

"The Patent Office bears a lesser burden of proof in making out a case of prima facie obviousness for product-by-process claims because of their peculiar nature" than when a product is claimed in the conventional fashion. In re Fessmann, 489 F.2d 742, 744, 180 USPQ 324, 326 (CCPA 1974). Once the examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product. In re Marosi, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983).

With respect to claims 23-26, Selhofer also discloses the use of the layer system for illumination body, such as interference coatings in the visible range with high refractive index or AR coatings.

Claims 23-26 recite recitations "usable as a coating for ....." which have not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the structural limitations are able to stand alone. See In re Hirao, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

The recitations of the intended use as claimed in the present application do not result in a structural difference between the claimed layer system and the prior art.

Accordingly, Selhofer meets the limitations of claims 1-3, 5, 8-9, 11 and 20-26.

5. Claims 1-3, 5, 8-9, 11, 14-15 and 20-27 are rejected under 35 U.S.C. 102(b) as being anticipated by Zeira et al. (WO 97/08357).

Regarding claims 1-3, 5, 8-9, 11, Zeira discloses a layer coating comprising a titanium aluminum oxide (page 13, lines 5-20) and a layer comprising  $\text{SiO}_2$  (page 12, lines 20-25). The titanium-aluminum oxide layer and the  $\text{SiO}_2$  layer can be considered as either a functional layer or an intermediate layer.

Regarding the "high thermal stability" limitation, since Zeira discloses the same layer structure comprising the same materials as claimed, Zeira's layer structure would inherently have the same properties such as high thermal stability and optically inactive. It is also confirmed by the description of the present application on page 3 of the specification that the "functional layer comprising titanium aluminum oxide inherently ensures a high thermal stability".

Regarding claims 14-15 and 27, Zeira discloses that the layer coating comprising about 98% titanium and about 2 % aluminum with a reflective index of 2.256 (page 13, line 5-20, page 15, lines 10-20, and page 21, claim 11), which meets the limitations of claims 14-15 and 27.

Claims 20-22 are product-by-process claims. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does



not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). In this case, since Zeira discloses the same product as claimed, Zeira anticipates the claimed product limitations even through the product disclosed by Zeira may be made by a different process.

"The Patent Office bears a lesser burden of proof in making out a case of prima facie obviousness for product-by-process claims because of their peculiar nature" than when a product is claimed in the conventional fashion. In re Fessmann, 489 F.2d 742, 744, 180 USPQ 324, 326 (CCPA 1974). Once the examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product. In re Marosi, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983).

With respect to claims 23-26, Zeira also discloses the use of the layer system as coating for illumination body (e.g. see page 5, lines 1-15).

Claims 23-26 recite recitations "usable as a coating for ....." which have not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the intended use of a structure, and where the body of the claim does not

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depend on the preamble for completeness but, instead, the structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

The recitations of the intended use as claimed in the present application do not result in a structural difference between the claimed layer system and the prior art.

Accordingly, Zeira meets the limitations of claims 1-3, 5, 8-9, 11, 14-15 and 20-27.

6. Claims 1-3, 5-9, 11-13, 15-26 and 28-29 are rejected under 35 U.S.C. 102(b) as being anticipated by Browning et al. (US 5,914,817).

Regarding claims 1-3, 8-9, 16-17 and 28-29, Browning discloses a layer system comprising an alternating layer system which comprises a plurality of high refractive index layer and a low refractive index layer (col. 3, lines 35-55).

Browning also discloses that the low refractive index material and the high refractive index material may each be a mixture of at least two materials. A preferred combination of alternating layers is a mixture of TiO<sub>2</sub> and Al<sub>2</sub>O<sub>3</sub>, in a ratio such that the mixture has a refractive index of 1.9 (col. 8, lines 1-25).

The high refractive index layer and the low refractive index layer can be considered as a functional layer or an intermediate layer.

Regarding the "high thermal stability" limitation, since Browning discloses the same layer structure comprising the same materials as claimed, Browning's layer structure would inherently has the same properties such as high thermal

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stability and optically inactive. As also indicated on page 3 of the specification of the present application, that the "functional layer comprising titanium aluminum oxide inherently ensures a high thermal stability".

Regarding claims 5, 11 and 18-19, Browning discloses that the low refractive index materials may be  $\text{SiO}_2$  (col. 7, lines 45-50).

Regarding claims 6 and 12, Browning discloses that some materials may be utilized as either a high refractive index material or a low refractive index material depending on the refractive index of the other material. Examples of material which may be utilized as either a high or low refractive index material depending on the particular combination of alternating layers include: indium oxide ( $\text{In}_2\text{O}_3$ ), silicon monoxide ( $\text{SiO}$ ), ( $\text{Si}_2\text{O}_3$ ), silicon oxynitride, tin dioxide ( $\text{SnO}_2$ ), zinc oxide ( $\text{ZnO}$ ), tantalum oxide ( $\text{Ta}_2\text{O}_5$ ), zirconium oxide ( $\text{ZrO}_2$ ), and oxides and nitrides of metal silicides (col. 7, lines 35-45).

Regarding claims 7 and 13, Browning discloses that at least one layer comprises zirconium oxide (col. 7, lines 40-50).

Regarding claim 15, Browning discloses that the mixture of  $\text{TiO}_2$  and  $\text{Al}_2\text{O}_3$ , in a ratio such that the mixture has a refractive index of 1.9 (col. 8, lines 1-15).

Claims 20-22 are product-by-process claims. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is

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unpatentable even though the prior product was made by a different process.”

In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). In this case, since Browning discloses the same product as claimed, Browning anticipates the claimed product limitations even through the product disclosed by Browning may be made by a different process.

“The Patent Office bears a lesser burden of proof in making out a case of prima facie obviousness for product-by-process claims because of their peculiar nature” than when a product is claimed in the conventional fashion. In re Fessmann, 489 F.2d 742, 744, 180 USPQ 324, 326 (CCPA 1974). Once the examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product. In re Marosi, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983).

With respect to claims 23-26, Browning also discloses the use of the layer system as coating for illumination body (e.g. see col. 1-2).

Claims 23-26 recite recitations which have not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the structural limitations are able to stand alone. See

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In re Hirao, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

The recitations of the intended use as claimed in the present application do not result in a structural difference between the claimed layer system and the prior art.

Accordingly, Browning discloses all the limitations of claims 1-3, 5-9, 11-13, 15-26 and 28-29.

***Allowable Subject Matter***

7. Claims 4 and 10 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ling Xu whose telephone number is 571-272-7414. The examiner can normally be reached on 8:00 am- 4:30 pm, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on 571-272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Ling Xu  
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Lx  
July 21, 2008